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# Social Policy and the Achievement Gap: What Do We Know? Where Should We Head?

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**Corey Bunje Bower<sup>1</sup>**

## Abstract

Educational research and reforms tend to focus on what happens inside schools, despite research consistently indicating that nonschool factors contribute more to the large achievement gap between different races and classes than do in-school factors. We now hear a growing call for social reform as a solution, but an important question remains, “Can social policy close the achievement gap?” This article examines the research from a number of different disciplines and fields and finds that we have plenty of reason to believe that social policy can alter educational performance but little evidence that it does. As such, a number of questions need to be answered before we can claim that social reform can meaningfully and efficiently narrow the achievement gap. Future directions for research and policy are discussed.

## Keywords

educational policy, educational reform, urban education

## Introduction

Black students, on average, score as much as one standard deviation below White students on standardized tests (Jencks & Phillips, 1998). Although the

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authors label this the *Black–White Test Score Gap*, the term *achievement gap* has been used more widely to refer to both the gaps in achievement between different races and ethnicities and between those of different classes or socio-economic backgrounds (J. Murphy, 2009). These gaps have troubled Americans for decades, and, over the past half-century or so, countless reforms have attempted to reduce or eliminate inequality in educational performance. We can group these various proposals, policies, and strategies into four broad categories:

1. *Equalize resources*: The 1897 *Plessy v. Ferguson* decision set the standard of “separate but equal” as a lawful goal; for the next sixty or so years, schools were separate but clearly not equal. Although *Brown v. Board of Education* outlawed separation, it failed to bring about equality. A touchstone book on inequalities in education (Kozol, 1991) has as its main thesis that funding inequalities between inner-city and suburban schools should be eliminated to close the achievement gap. This is in line with the countless equity lawsuits filed across the country demanding different allocation of state resources so that poorer districts receive funding more in line with that of wealthier districts. In short, there was, and in some circles still is, a real belief that equalizing resources will also equalize academic performance.
2. *Integrate schools*: One of the most immediate reforms after the *Brown* decision was the integration of schools. In many cases, it was simply to comply with the law, but in others, it was a strategy aimed at shrinking achievement gaps. Indeed, an oft-ignored finding of the so-called “Coleman Report” (Coleman et al., 1966) is that the socio-economic status of one’s peers in school matters—that attending a school with better-off peers is associated with higher achievement. As such, busing programs began and, in some places, continue to this day. Some districts started magnet schools aimed specifically at drawing students of different races and backgrounds to the same school (Smrekar & Goldring, 1999). Some started “detracking” schools to end within-school segregation (Argys, Rees, & Brewer, 1996). The goal of these integration strategies, broadly defined, was to expose all children to the same social norms and academic resources and opportunities in the hope of equalizing academic performance.
3. *Enhance high-poverty schools*: Although many funding reforms designed to equalize resources between schools located in poorer and wealthier districts have done just that (S. Murray, Evans, &

Schwab, 1998), the achievement gap persists. In response, many are now proposing that high-poverty schools be given disproportionately more resources to overcome the disadvantages their students face. Adequacy lawsuits have demanded that all students receive an adequate education, which oftentimes costs more for some students than for others. As a result of *Abbot v. Burke* in New Jersey, there are now 31 “Abbot Districts” that were among the poorest at the time of the decision and now receive a disproportionate amount of state funding (Walker & Gutmore, 2002). In some places, boarding schools (such as the Milton Hershey School or the SEED Foundation schools in Baltimore and Washington, D.C.) have sprung up specifically for disadvantaged youth. Coupled with Title I funding that is directed only to certain students and certain schools, a number of policies aim to give the poorest the most and see what happens.

4. *Choice and competition:* With the passage of No Child Left Behind, many are now pushing a new strategy: do more with what we have. Teachers and schools are repeatedly told that there are “no excuses,” and the accountability movement is designed to ensure that all are putting forth maximum effort and that schools that do not succeed are reprimanded and subjected to further scrutiny. When a school is deemed in need of improvement under NCLB, it receives closer scrutiny rather than additional help. Although charter schools have largely replaced vouchers as the preferred option for introducing choice and competition into school districts, a variety of free-market solutions (e.g., supplemental educational services and performance pay in addition to charter schools and vouchers) currently dominate the education reform agenda in Washington.

## What's Missing?

While all four reform strategies have merit, none have, as of yet, succeeded in closing the achievement gap. Advocates of various reform efforts would doubtless argue that this is due to the limited spread of their pet reform—and they might be right. However, it is also possible that we are missing something. All of these strategies focus on what happens *inside* of schools, but it is clear that the achievement gap both begins and widens *outside* of schools.

At the time that students begin school, a large gap in achievement already exists (Lee & Burkam, 2002). Indeed, future performance can be predicted with startling accuracy early on. A longitudinal study of children in Baltimore found that each additional absence in first grade was associated with a 5%

greater chance of dropping out before the end of high school (Alexander, Entwisle, & Horsey, 1997).

Not only is the achievement gap present when students begin school, it also grows during summer breaks (Entwisle & Alexander, 1992; Heyns, 1978). As a result of the growth in the gap before starting school and during breaks from school, our best estimate is that about three quarters of the gap is formed outside of school and about one quarter is formed while students are in school (J. Murphy, 2009). This makes sense when we consider that kids spend only about 15% of their waking hours in schools from birth to the age of 18 (Walberg, 1984).

In the 1960s, Congress commissioned a study largely to confirm that students in poorer schools (particularly Black students in segregated schools) lagged behind because their schools had fewer resources. Instead, the study (Coleman et al., 1966) concluded that nonschool factors are more important in determining the achievement level of a given student than are in-school factors. The finding has been replicated countless times over the past 40+ years (see, for example, Alexander, Riordan, Fennessey, & Pallas, 1982; Hauser, 1972; Sirin, 2005). The current consensus is that home and background factors predict about two thirds of the variance in achievement whereas school factors predict about one third (Rothstein, 2004). Indeed, if there is anything on which education researchers agree, it is that student achievement is influenced more by nonschool factors than in-school factors—and the evidence is *overwhelming*.

## A Different Strategy?

The strong relationships between various background and socioeconomic variables and achievement suggest that limiting reform to in-school changes may not be the most effective strategy for closing the achievement gap. If the gap is formed and widened while students are out of school, it may make more sense to alter home and neighborhood environments to boost the performance of disadvantaged students.

We sink an incredible amount of time and resources into education, and the gap in achievement has wide-ranging implications for our country. As such, we should make a serious effort to investigate whether a fifth option may be better suited to solving the problem—or at least an effective complement to other options. We need to ask whether social policy can bring about a change in academic performance substantial enough to significantly reduce the achievement gap and whether such changes in social policy are affordable and feasible.

I am far from the first to suggest that social policy may be a worthwhile avenue for educational reform. Rothstein (2004), Anyon (2000), and others, have suggested that we should reform society if we want to improve schools. Recently, a group of researchers and other education experts formed what has come to be called the “Broader, Bolder Coalition” to propose such a strategy (Economic Policy Institute, 2008b). The group writes that

Despite impressive academic gains registered by some schools serving disadvantaged students, there is no evidence that school improvement strategies by themselves can close these gaps in a substantial, consistent, and sustainable manner. Nevertheless, there is solid evidence that policies aimed directly at education-related social and economic disadvantages can improve school performance and student achievement. (Economic Policy Institute, 2008a)

Regardless of whether schools can, in fact, close the achievement gap by themselves, it may be the case that social reform is a more effective or efficient strategy. However, it is unclear that their second statement is true—that we, indeed, have “solid evidence” that altering social policy can effectively alter academic performance.

Some might also take umbrage at the implication that schools alone cannot close the achievement gap. One could easily assume that the group is implying that schools are ineffective or not worth our time and effort. In reference to Rothstein’s call for comprehensive social reform, Heyneman (2005) writes, “In essence, it appears that the terms of the debate have remained largely unchanged and repetitive. There seem to be consistent schools of thought over time—either that the schools are ineffective or effective” (p. 4).

It is *not* my intention, however, to pit school reform versus social reform; they need not be enemies of one another. Nor is it my intention to call into question the effectiveness of schools—indeed, an examination of social policy should be undertaken regardless of the effectiveness of schools. Even if schools can work miracles, it is possible that social reforms can do so more efficiently or on a broader scale. Rather than viewing social reform as a substitute for school reform, we should see them as possible complements. An investigation of social policy of the type that I have proposed should not be construed as an attack on the ability of schools to educate children. Instead, it should be seen as an alternative hypothesis worth testing if we are serious about closing the achievement gap. In short, regardless of what schools are capable of achieving, we should still be asking whether, and how, social policy can narrow the achievement gap.

This article aims to both provide both a preliminary answer to these questions and an agenda for arriving at more definitive and comprehensive answers in the future. It does so by exploring and synthesizing the literature from a number of different fields and disciplines. The first step is an examination of literature linking changes in social policy with academic outcomes.

## **Links Between Policy and Performance**

Although numerous studies find strong relationships between many social conditions or environmental factors and academic performance—and sometimes between changes in those conditions and achievement—few studies have examined the effects of a change in an actual policy (or at least an experiment designed to simulate a policy change) on academic performance. Below, I identify five policy changes or experiments on which rigorous empirical studies have been conducted linking them with school-related outcomes (see Table 1 for a brief comparison of the five) and provide a brief overview of the findings.

### ***Gautreaux***

In 1976, the Illinois State Supreme Court ruled that public housing residents could reside in both Chicago and the surrounding suburbs. Subsequently, thousands of families were offered housing vouchers to either continue to live within city limits or to move to surrounding suburbs. Kaufman and Rosenbaum (1992) argue that the location of residents was exogenous because residents were usually placed on a long waiting list and subsequently took the first available opening regardless of location. They examine the academic performance of students who moved to suburban areas compared with those that did not 7 years later.

The authors hypothesize that families that move will find themselves comparatively poorer relative to their neighbors and that students will be more likely to drop out of school and less likely to obtain jobs (the “relative disadvantage hypothesis”). Instead, they find that the opposite occurred. Students that moved to the suburbs were four times less likely to drop out, twice as likely to enroll in college, and seven times as likely to enroll in a 4-year college. In addition, those that moved on to the workforce took higher paying jobs.

However, the study was somewhat limited. Out of about 4,000 families that participated in the voucher program, they examined 107 that moved in 1982. In 1989, they were only able to track down 66% of the original participants for follow-up interviews. In addition, the categorization of residents

**Table 1.** Social Policies and Experiments Linked to Academic Performance

Policy/experiment	Context	Results
Negative Income Tax—Gary, IN	Four similar experiments around the country tested the effects on poor families of a negative income tax, that is, guaranteeing a certain income regardless of work and decreasing supplemental income based on earned income.	Students in Grades 4 through 6 did significantly better, besting those in the treatment group by about .25 SD. After 4 years in the study, they were ahead by about one third of a standard deviation. There were no statistically significant results from 7th to 10th graders.
Gautreaux Decision—Chicago, IL	A court ruling in 1976 led to low-income residents being offered housing vouchers to live either in Chicago or in wealthier suburbs. Studies compare families that stayed in high-poverty neighborhoods in the city with those that moved to low-poverty districts outside the city.	Students who moved to the suburbs were four times less likely to drop out of school, twice as likely to enroll in college, and seven times as likely to enroll in a 4-year college. Those who entered the labor force were in higher paying jobs.
Closure of High-Rise Public Housing Towers—Chicago, IL	With many clusters of high-rise public housing becoming gang riddled and violent, the decision was made to close down these towers and move residents elsewhere. Jacobs compared former residents of towers closed for maintenance and other plausibly exogenous reasons with residents of towers in the same development that remained.	There were no statistically significant differences in achievement between movers and stayers, but point estimates grew over time. Families tended to move to neighborhoods close by with similar levels of poverty and similar schools.

*(continued)*



**Table 1 (continued)**

Policy/experiment	Context	Results
Moving to Opportunity— Baltimore, MD; Boston, MA; Chicago, IL; Los Angeles, CA; New York, NY	A five-city experiment where low-income families received vouchers to move to low-poverty census tracts, regular Section 8 vouchers, or continued with their present housing. Studies compare those who received vouchers to move to low-poverty census tracts with those who received no voucher.	47% of treatment households used the voucher to move to a lower poverty neighborhood, but many moved back to higher poverty neighborhoods in subsequent years. No statistically significant differences in achievement were detected except in Baltimore and among African Americans. However, researchers have found differences in mother's mental health and other outcomes.
New Hope Project— Milwaukee, WI	A 3-year experiment beginning in 1994 in which low-income adults in two areas of Milwaukee were offered job search assistance or a volunteer job. Those who worked at least 30 hr/week were also given an earnings supplement, subsidized health insurance, and subsidized child care.	Evaluations were conducted after 2, 5, and 8 years. Treatment group students scored higher on standardized tests at the 5-year mark, but effects faded out by Year 8 (5 years after the program ended). Even at Year 8, however, New Hope students were less likely to receive poor grades in school or attend remedial summer school and reported higher levels of school engagement, higher school expectations, and more hope for the future. Results were more positive for boys than girls.

into either urban/poor or suburban/middle-class neighborhoods is rather rough and might be misleading in some cases. Not all urban areas are poor, and not all suburban areas are wealthy. Last, even if the differences in performance are a direct result of the move, it is unclear whether the gains were caused by the move to a better neighborhood, the move to a better school, or a combination thereof.

### *Negative Income Tax Experiment*

Four experiments using a negative income tax took place during the 1970s. In the experiment, low-income families were divided into control groups and treatment groups that were exposed to a negative income tax—that is, they were guaranteed a certain income and their subsidy decreased as their income increased. The study of academic performance in Gary, Indiana (Maynard & Murnane, 1979) is the most comprehensive.

The authors found that students in Grades 4 through 6 scored more than one quarter of a standard deviation higher on standardized math and reading tests than did those in the control group and that this advantage grew over time; those who had been in the experiment for 4 years had an advantage of about one third of a standard deviation. For students in Grades 7 through 10, however, there was no significant difference in achievement. These results were consistent with studies conducted on similar experiments in other locations, including urban New Jersey (Mallar, 1977) and a group of rural areas (Maynard, 1977).

### *New Hope Project*

Beginning in 1994, low-income residents in two areas of Milwaukee took part in an experiment in which those in the treatment group received job placement assistance. Those who worked for 30 hr per week were also given an earnings supplement that pushed them over the poverty line and offered both subsidized health insurance and child care. Two years after the program ended, treatment group children scored significantly higher on standardized math and reading tests, but effects had faded out 3 years later. Even 5 years after the program, however, parents of treatment group children were less likely to report that their kids received poor grades in school, and students were less likely to attend remedial summer school and reported higher levels of school engagement and school expectations and were more optimistic about the future (Huston, Walker, Dowsett, Imes, & Ware, 2008).

In many ways, the New Hope project represents the most comprehensive effort to date to alter families' lives outside of school and then subsequently measure the impact on their children in school. The program helped families earn more money, receive better health care, and access child care. However, a change in the home lives of the family—not only what type of home and neighborhood they live in but also how they experience their home and neighborhood—was not part of the experiment.

### *Moving to Opportunity*

From 1994-98, the Moving to Opportunity experiment was conducted in five American cities: Baltimore, Boston, Chicago, Los Angeles, and New York. Families were divided into three groups: a control group, a group eligible for regular section 8 vouchers, and a treatment group that received vouchers to move to housing in low-poverty census tract.

Numerous studies have analyzed different outcomes in each city, but one study (Sanbonmatsu, Kling, Duncan, & Brooks-Gunn, 2006) examined the effects on educational outcomes across all five cities. The results must be interpreted somewhat delicately because only 47% of those in the treatment group used the voucher to move and many of those who did later moved back to neighborhoods with higher poverty. As a result, families in the treatment group only tended to live in neighborhoods that were slightly less impoverished and attend schools that were slightly higher performing than those who were in the control group.

The authors find that, across the board, there are no statistically significant differences between those in the treatment group and those in the control group. There are, however, statistically significant positive results for students in Baltimore and for African American students in reading. The authors conclude that their findings indicate that “achievement-related benefits from improved neighborhood environments alone are small” (p. 650). Given the low rates of relocation from and high rates of return to high-poverty neighborhoods, this statement may not be fully justified. Regardless of the actual effects of moving to a better neighborhood, however, it seems reasonable to conclude that, at least in this case, offering vouchers to move to lower poverty neighborhoods did not seem to greatly affect achievement.

### *Demolition of High-Rise Housing Projects*

In the 1990s, Chicago made a concerted effort to demolish high-rise housing projects in developments that had become notorious for gang violence. Jacob

(2004) examined the educational outcomes of those who moved from the projects from 1991 to 2002. To avoid endogeneity, he used only families who were moved from buildings that were closed for reasons of maintenance (e.g., a broken boiler or burst pipe), which he argues should be exogenous, and compares them to residents in different buildings from the same complex who remained.

He finds no statistically significant difference in achievement but point estimates are continually in a direction that would indicate the possibility of a small effect. Students do noticeably better 4 years after moving than 1 year after moving. Indeed, given the tumult associated with forced removal from public housing (Venkatesh, 2008), we might expect that a move would lead to an immediate decrease in achievement. That he finds positive point estimates 4 years later may indicate that an interpretation of no effect is not the correct one.

In addition, the study faces many of the same problems that those analyzing *Moving to Opportunity* do—namely that families, on average, did not move to significantly different neighborhoods. The average resident in the study lives 1.25 miles from their original location, and almost all still live in high-poverty census tracts and attend schools with large minority populations and low test scores. In this way, we might not expect to see large differences after moving from public housing—family dynamics would likely remain nearly identical, as would school environment in many cases, and the change in neighborhood environment simply might not be that large.

## Summary

These five studies provide mixed evidence on the ability of changes in social policy to effect change in academic performance. Gautreaux seemed to indicate that rather small changes in policy could dramatically change lives. However, MTO dampened much of that enthusiasm. There are two things worth noting about the collective evidence, however: (a) In all of the above studies in which assessments were conducted at an earlier and later time point (while the policy/experiment was still under way), the later assessment found more positive results than the earlier one—indicating that it may take a long time to realize the full effects of social policy; and (b) The scope of social issues affected by these policies—particularly each one individually, but even when examined collectively—is somewhat small. A myriad of social conditions and environmental factors are associated with academic performance, and these policies and experiments touch on only a few.

## **Social Policy and Academic Performance**

Given the small number, and mixed results, of studies directly linking policy changes with academic outcomes, it becomes necessary to examine a broader range of literature linking social conditions and environmental factors with academic performance. The purpose of this examination is twofold: (a) to identify potential levers on which social policy might act; and (b) to make a rough assessment of the strength of the evidence linking various factors and conditions with academic outcomes. The size and scope of the literature is far too broad to fit a detailed systematic analysis of each factor into one short article—such a study would merit at least one book-length volume—rather, this article aims to provide an illuminating overview of the research on each factor or condition. The end result is a clearer picture of the current state of research on the ability of changes in social policy to effect change in academic outcomes and subsequently narrow the achievement gap.

Social policy, generally defined, consists of education, health care, housing, welfare, social security, unemployment, family services, and sometimes aspects of the criminal justice system depending on which definition one uses (Midgley, Tracy, & Livermore, 2000). For the purposes of this article, I divide social policy into four broad categories: health and health care, housing and neighborhoods, economic well-being, and family. We *do* have solid evidence of relationships between numerous factors within these four categories and the academic performance of children. Not only are numerous social conditions and environmental factors correlated with academic performance, but most disproportionately impact poor, minority students. In that sense, there is reason to believe that altering various conditions and factors would disproportionately help those who tend to score the lowest—and, as a result, lead to a narrowing of the achievement gap.

In this section, I identify factors that both disproportionately affect lower class families and are strongly related with academic performance. I define academic performance to include not only performance on standardized tests but also grades, graduation rates, and college attendance. As the evidence of relationships between social reform and academic achievement is lacking in some areas, I include social issues with established relationships with at least two factors directly linked to academic performance, including cognitive ability (e.g., IQ), cognitive function (e.g., working memory), and effort in school.

I focus on the achievement gap between classes rather than between races. As class and race are so tightly intertwined, causes and solutions mostly overlap. However, I omit a serious examination of racism and any adverse impact it may have on achievement and attainment. I do this both because one article

can only examine so much and because “race is important but socioeconomic status is the critical issue” (J. Murphy, 2009)—or, as Rothstein (2004, p. 52 cited by J. Murphy, 2009, p. 19) puts it “social class matters more than race.”

Last, I focus on causes of the achievement gap in urban areas. Although rural students, in many cases, lag just as far behind as those in the inner-city, the causes of this deficit are somewhat disparate—and solutions are likely to be as well. As such, the role of social policy in influencing the achievement of rural youth merits a separate analysis.

## Health

A wide body of literature asserts that those who with fewer financial resources experience far more health problems; from asthma to zinc deficiency (see, for example, Egbuonu & Starfield, 1982; Kelly, Madeleine, Carolyn, Tod, & Raoul, 2006; Rosenbaum, 2008). Indeed, the most convincing section of Rothstein’s (2004) book is his writing on health care and academic performance. Other attempts to identify health problems disproportionately affecting poor and minority children that also influence achievement have focused on specific diseases and narrow problems like lead poisoning, ADHD, asthma, and teen pregnancy (Basch, 2010; Currie, 2005). Although these deserve attention, I instead focus on larger problems that affect more people—and, in turn, have more potential to lead to a significant reduction in the achievement gap.

## Vision

Perhaps the most promising studies for advocates of social reform are a trio of trials involving vision therapy. One experiment in Baltimore (Harris, 2002) randomly assigned students with vision problems to either a control group or one that received vision therapy over the course of a school year. By the end of the year, those who had received vision therapy scored significantly higher on math and reading achievement tests than had those who had not. The authors conclude that eyesight is an important determinant of reading ability and that sight problems can be overcome in a scholastically relevant manner.

Another study (Orfield, Basa, & Yun, 2001) tracked the academic performance of students in an inner-city Boston school over the course of 6 years. They found that nearly half of the students failed a prescreening eye test and that these students scored significantly lower on math and reading achievement tests than those who passed. Students who failed an eye exam were either provided with vision therapy, free glasses, or were prescribed glasses. After receiving treatment, students who failed the prescreening progressed significantly faster than those who had passed.

A third study (Streff, Poynter, Jinks, & Wolff, 1990) followed kindergartners in an Ohio parochial school who were offered eyeglasses along with 1 hr of vision therapy and two 0.5-hr visually based classes each week and compared them with matched students at a similar school in a neighboring town. Students in the treatment group scored similarly on math and IQ tests in September but statistically significantly higher by April.

A wide range of literature has both linked vision and academic performance (Maples, 2003) and poverty with vision problems (College of Optometrists in Vision Development, 2000). The link between vision and achievement is both logical—if one cannot see, they cannot read written words—and well supported. In addition, the link between changes in vision and changes in achievement is probably better documented than any other factor likely to be affected by social policy.

### **Nutrition**

A number of studies have linked various nutritional factors with lower cognitive functioning—from iron deficiency (Haltermann, Kaczorowski, Aligné, Auinger, & Szilagyi, 2001) to breakfast consumption (Kleinman et al., 2002; J. M. Murphy et al., 1998). One recent study, controlling for student background by using propensity score matching, found that inner-city students who consume fast food at least four times per week score a full one half of a standard deviation lower in both math and reading than those who eat fast food 0 to 3 times per week (Tobin, 2009).

In another study (Schoenthaler, Amos, Eysenck, Peritz, & Yudkin, 1991), students in New York City were given vitamin/mineral supplements or placebos in different amounts. Students who were given the vitamin/mineral supplements performed significantly better on IQ tests, and students who received larger doses performed better than those who received smaller doses. Over the years, this study and other similar trials were the subject of much scrutiny. A larger, double-blind study using vitamin/supplements and placebos replicated the consistent finding that students taking the supplement gain about three additional IQ points over a 3-month period (Schoenthaler, Bier, Young, Nichols, & Janssens, 2000).

The notable finding in this study, which was consistent with a reanalysis of other randomized field trials using supplements, is that most students in the treatment group did not progress at a significantly different rate than did those in the treatment group. Students were matched with other similar students in the same class at the beginning of the study and about a fifth of the students gained 15 or more IQ points more than their comparison student. In other words, vitamin/mineral supplements do not seem to help the majority

of the population; rather, they help only a few, but they help those few make spectacular improvements. The few that gained more than the rest were, indeed, much more likely to be vitamin deficient prior to supplementation. A recent review of the literature on the influence of children's diet on their cognition found plentiful evidence that "diet can influence the development and functioning of the brain" (Benton, 2008, p. 25).

The relationship between nutrition and achievement is not quite as straightforward as the one between vision and achievement, but it stands to reason that those who are hungry or malnourished will not perform as well as those who are not.

### *Physical Fitness*

A wide body of literature links physical activity, physical fitness, and obesity with race and income and, increasingly, cognitive performance. A recent review of the literature finds mounting evidence that physical activity is positively associated with academic performance (Trudeau & Shephard, 2010).

One study found that academic achievement was positively associated with physical activity and fitness for girls and with physical fitness for boys (Kwak et al., 2009). A study of 3rd and 5th graders in Illinois found that higher aerobic and lower BMI were associated with higher achievement scores in math and reading (Castelli, Hillman, Buck, & Erwin, 2007). Another recent analysis found that girls who spent more time (70-300 min/week) in physical education while in school outperformed those who spent less (0-35 min/week; Carlson et al., 2008).

Why the link? A review of the psychological literature on both animal and human research concludes that exercise facilitates children's executive function (Tomprowski, Davis, Miller, & Naglieri, 2008). Indeed, a later study found that children with higher aerobic capacity performed better on tests of executive control (Hillman, Buck, Themanson, Pontifex, & Castelli, 2009).

However, another review of the research cautions that although positive associations exist between physical fitness and both academic achievement and cognition, the studies are mostly correlational and provide only weak evidence that an intervention the increased physical fitness would subsequently increase academic performance (Keeley & Fox, 2009). Literature reviews on many social conditions could reach similar results.

### **Economic Well-Being**

That students from poorer families develop differently is nearly undisputed (see, for example, Duncan, Brooks-Gunn, & Klebanov, 1994; Duncan,



Yeung, Brooks-Gunn, & Smith, 1998; Evans & Kantrowitz, 2002; McLoyd, 1990). Less clear is how these differences in economic well-being affect academic performance.

### *Income*

Study after study has found that students with higher income parents do better, on average, than those with lower income parents (see, for example, Blau, 1999; Dahl & Lochner, 2005; Duncan et al., 1994). Although it is abundantly clear that higher earning parents tend to have higher achieving children, the causal link is less clear. More importantly, will a rise in parental income lead to a rise in the achievement of their children? Answering this question relies partly on identifying the myriad paths through which income affects achievement. Various studies point to stress and positive parenting (Gershoff, Aber, Raver, & Lennon, 2007); birth weight (Kehrer & Wolin, 1979); home environment and mother's mental health (Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998), and numerous other factors, which begs the question "Is income simply a proxy for other characteristics, or does earning a higher income mean that a parent can take better care of their child(ren)?"

One interesting test of this question was a study looking at an exogenous source of income—lottery winnings—and the effect that it had on the health care of winners (Lindahl, 2005). In this case, a 10% increase in earnings was associated with an increase of nearly 5% of a standard deviation on a scale of health. Better health for oneself may be easier to buy than better achievement for one's children, however.

The (in)stability of income creates further challenges for both researchers and policy makers. Blau (1999) argues that "policies that affect family income will have little direct impact on child development unless they result in very large and permanent changes in income" (p. 261).

### *Wealth*

Fewer studies have examined wealth instead of, or in addition to, income—likely because they were much harder data to obtain. Wealth is also a significant predictor of academic achievement (see, for example, Shanks, 2007; Yeung & Conley, 2008) and, oftentimes, it is found to be a stronger predictor than income (Orr, 2003). That wealth would be a stronger predictor of achievement than income should surprise no one. One can imagine that two families with equal incomes would not have equal resources if one had a stock portfolio, money in the bank, and home equity whereas the other lived paycheck to paycheck.

At the same time, the causal links between wealth and achievement are somewhat unclear. How, exactly, does wealth, independent of other factors, lead to higher achievement? More importantly, would a change in wealth, independent of other factors, also lead to a change in achievement? As with income, myriad paths exist between wealth and academic performance.

## **Housing and Neighborhoods**

That lower income families live in both lower quality homes and less desirable neighborhoods is not seriously questioned. Indeed, local home values seem to explain differences in schoolwide achievement that other background variables do not (Kane, Staiger, & Samms, 2003). This may be due in part to those with means opting to move into neighborhoods zoned for better schools but may also indicate a more complex relationship between home and neighborhood characteristics and various behaviors and actions. Indeed, it has been theorized that perception of disorder in one's surroundings leads to various negative behaviors (Franzini, Caughy, Nettles, & O'Campo, 2008; Sampson & Raudenbush, 2004).

### ***Neighborhood Effects***

Aaronson (1998) argues that estimates of neighborhood effects are biased by the fact that families choose where to live. However, using data on siblings at least 3 years apart he finds that moving to a neighborhood with a 10% increase in poverty rate was associated with a 7% drop in the likelihood of graduating from high school. Multilevel modeling has also addressed various methodological concerns and repeatedly found empirical evidence of effects (see, for example, Garner & Raudenbush, 1991). However, it is unclear in exactly what ways neighborhoods influence achievement independent of other factors (Sampson, Morenoff, & Gannon-Rowley, 2002).

Researchers have struggled to find more than a correlational relationship between neighborhoods and achievement. One recent study attempted to simulate an experiment by matching similar students using longitudinal data from Chicago and found that African American students who spent more time living in poverty had verbal achievement scores that lagged about a year behind those who spent less (Sampson, Sharkey, & Raudenbush, 2008). A somewhat similar study (Harding, 2003) used counterfactual models to try and estimate the effects of moving to a wealthier or poorer neighborhood and found that those who moved to poorer neighborhoods were less likely to complete high school and more likely to become pregnant as a teenager.

Although it makes intuitive sense that living in a less desirable neighborhood might negatively affect children, changing neighborhoods is no small task.

### *Public Housing*

Residents of public housing are, by definition, needier than are non-residents. Currie & Yelowitz (2000), however, use an instrumental variables approach to cast some doubt that these developments actually harm children's achievement. Since public housing rules grant separate bedrooms to opposite sex children, families with two boys or two girls would be placed in a two bedroom apartment while families with one boy and one girl would be placed in a three bedroom apartment - making the latter more likely to seek residence in a public housing development. The authors exploit this exogenous difference to compare two-child families with same- and mixed-gendered pairs of children and find that families living in public housing reside in less crowded apartments and are less likely to live in large, dense, developments and, perhaps as a result, are 11% less likely to have been held back in school based on child's age and reported school level. On the other hand, cities with more large, dense developments may influence academic performance differently; a research report from New York City (Furman Center & Institute for Education and Social Policy, 2008) found students living in public housing perform noticeably worse on standardized tests than do other students even when controlling for other background variables. The stock of public housing, of course, varies widely across the nation - as, most likely, does the experience of the residents who live there.

### *Noise*

Neighborhoods are complex, as are the ways that they influence families and individuals that live in them. The environmental factor with perhaps more research behind it than any other is noise. One study in New York City compared students on the side of a school right next to elevated train tracks and found that they performed worse than those on the opposite, quieter, side of the school. After installing noise dampening devices on the tracks and heavy insulation in the ceiling, noise was reduced and test scores were equal the following year (Bronzaft, 1981).

Other studies have found associations between levels of noise and language acquisition (Evans & Maxwell, 1997) and reading ability (Maxwell & Evans, 2000). One study used apartment buildings next to highways to study the effect of household noise on children's verbal abilities (Cohen, Glass, & Singer, 1973). Higher floors were less noisy and, controlling for other

background factors, the children that lived there also scored higher on assessments of both their auditory perception and verbal achievement.

## *Homeownership*

Although neighborhoods matter, clearly not all neighbors achieve equally. One difference between residents of the same neighborhood is renting versus owning a home. Policy makers from across the political spectrum often see homeownership as a worthwhile aspiration for virtually all Americans, and the homeownership across the country has steadily risen over the past century (Masnick, G. S., 2004). However, owning a home requires a good bit of financial wherewithal, so homeownership rates vary widely between classes.

Multiple studies find a positive relationship between homeownership and academic performance, even after accounting for other variables. Why the relationship? Homeownership may produce positive externalities, as homeowners subsequently experience higher incomes later in life (Di, 2007), invest more in social capital (DiPasquale & Glaeser, 1999), and have higher rates of political engagement (Engelhardt, Eriksen, Gale, & Mills, 2010). Partially as a result of these changes in behavior, the children of homeowners tend stay in school longer and are less likely to become pregnant as a teenager (Green & White, 1997). Aaronson (2000) and others argue that part of the explanation may be family characteristics that are associated with homeownership, but even after controlling for these he still finds a unique and significant contribution of homeownership on predicting achievement due to increased residential stability. In addition, another study finds that after becoming homeowners, families experience better home environments, fewer child behavior problems, and have children with higher cognitive achievement (Haurin, Parcel, & Haurin, 2002). Increasing homeownership rates among lower income families, of course, may not be a panacea—as evidenced by the recent subprime mortgage crisis.

Although we know that numerous housing-related variables are correlated with achievement, it is less clear whether these variables are actually causing lower achievement. When we try to measure neighborhood environment, we may actually measure symptoms of problems rather than the actual problems. Broken windows, for example, may be a symptom, rather than a cause, of neighborhood disorder.

## *Family*

Seymour Martin Lipset, a fellow at the Hoover Institute, was overheard summarizing the results to Senator Daniel Patrick Moynihan thusly: “Guess what

Coleman's found? Schools make no difference; families make the difference" (quoted in Gamoran & Long, 2006).

While the statement somewhat misinterpreted the findings of the report, the family may indeed be the most important factor in predicting achievement of children. One comprehensive study in Canada (Boyle, Georgiades, Racine, & Mustard, 2007) estimated that more than one third of variation in achievement is due to measurable variation in family differences.

### *Family Structure*

Some evidence exists that family structure itself influences academic performance. Zajonc (1976) found that IQ decreased with each subsequent birth—in other words, that younger children in larger families had lower IQ scores than other children. Other researchers have also found that children from larger families tend to have lower IQ scores (Black, Devereux, & Salvanes, 2010) and verbal ability (Shanks, 2007). Baharudin and Luster (1998) found that parents with fewer children provided better home environments to their children and that children with better home environments had higher achievement.

Reducing family size, however, is possible only in the long run (barring extreme measures, of course).

### *Parental Characteristics*

Numerous studies have found that various parental characteristics are highly correlated with achievement. Yeung and Conley (2008) found that occupational prestige and the mother's score on a similar achievement test were the strongest predictors of their child's performance on an achievement test. Magnuson and Duncan (2006) report that each additional year of parental education is associated with an increase of about .15 standard deviations in achievement. Plenty of evidence exists that children of teen mothers do worse in school than others (Furstenberg, Brooks-Gunn, & Chase-Lansdale, 1989). A study of maternal employment (Alessandri, 1992) found that children whose mothers were employed both perceived more cohesion and organization in their families and earned higher marks on achievement tests. With the exception of employment, however, these factors may be extremely hard to change in the short run.

### *Home Environment*

Numerous studies have also found relationships between achievement and home environment. Higher poverty households tend to score lower on

measures of home environment (Garrett, Ng'andu, & Ferron, 1994), and others find a relationship between home environment and academic performance.

A longitudinal study (Bradley, Caldwell, & Rock, 1988) looked at the same group of kids both when they were infants and when they were 10 or 11 years old and found the home environment at both ages was associated with the children's academic performance. One recent study (Deater-Deckard et al., 2009) examined same-sex twins and found that children living in homes with higher levels of chaos both scored lower on IQ tests and exhibited more behavioral problems.

Parenting styles are a key part of home environment. Yeung and Conley (2008) found one measure of home environment—parental warmth—to be positively associated with achievement, even when controlling for a bevy of other factors. Another study of parenting style found that the least educated parents are the most likely to use authoritarian or permissive parenting styles—which were negatively associated with grades, controlling for parental education and other factors—whereas more educated parents were more likely to use authoritative parenting styles, which were positively associated with grades (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987).

That family life would correlate so highly with academic performance should surprise no one. Every parent operates under the assumption that the environment they create at home will influence the success of their child down the road. Less clear are the links between social policy and family life.

## **How Could Social Policy Affect Academic Performance?**

The studies reviewed above point to a number of different ways in which social policy may be able to influence student performance in school. The bulk of the correlates with student achievement, however, are only that, and the mantra of social science is that correlation does not prove causation. For most of the factors identified, there is substantial evidence of a strong association with achievement, but little to no evidence that when the characteristic changes academic achievement will subsequently change as well. For example, we know that students with more educated parents tend to do better in school, but it is less clear that children would subsequently perform better if their parents received more education. For some of the factors identified, we have evidence that when changes are undertaken, student performance subsequently changes as well (see Table 2 for a comprehensive, but not exhaustive, list of factors that have been found to have a correlational or longitudinal relationship with achievement). Moreover, only for very few do

**Table 2.** Nonschool Factors Associated With Academic Performance

Correlational relationship	Longitudinal relationship
Parents' education (+)	Presence of eyeglasses (+)
Frequency of fast food consumption (–)	Vision therapy (+)
Family wealth (+)	Family income (+)
Level of noise in residence (–)	Poverty level of neighborhood (–)
Age of mother at time of birth (+)	Breakfast consumption (+)
Number of children in family (–)	Vitamin/mineral supplement (+)
Residence in public housing (–)	
Parental warmth (+)	
Single parent (–)	
Maternal employment (+)	
Parents' occupational prestige (+)	
Home environment (+)	
Neighborhood home values (+)	
Iron deficiency (–)	
Neighborhood social organization (+)	
Permissive/authoritarian parenting (–)	
Authoritative parenting style (+)	
Mother's achievement test score (+)	
Homeownership (+)	

we have evidence that a policy change will yield both a change in social conditions and, subsequently, a change in student performance.

In addition, it is unclear that social policy can act on many factors. Parents of different classes tend to have different parenting strategies (Lareau, 2003), something that may be beyond the scope of all but the most intensive and interventionist of policy. Moreover, a great deal of what children learn seems to depend on what happens in their homes. In one oft-cited study (Hart & Risley, 1995), researchers found that children from upper-class homes heard millions more words than did their lower-class peers and that, subsequently, they had a much larger vocabulary. It is hard to imagine a feasible and scalable policy that would dramatically increase the number of words spoken to toddlers by their parents.

So, although it remains eminently logical to argue that social reforms might dramatically affect academic performance in a way that would shrink the achievement gap, the current evidence does not allow for much certainty as to exactly how this might be accomplished.

## How Shall Services Be Delivered?

Although it may be hard to envision actions that can be taken by federal, state, county, or city governments that would dramatically alter many day-to-day factors such as parenting strategies or the number of words spoken by parents, schools may be a better vehicle for delivery of many services. “Community schools” with multiple services built in have experienced some success (Dryfoos, Quinn, & Barkin, 2005), while health clinics in schools have a somewhat mixed record but have also achieved some notable successes (N. G. Murray, Low, Hollis, Cross, & Davis, 2007).

The Harlem Children’s Zone has been held up as an example of even more comprehensive services delivered in conjunction with a school. The foundation combines multiple charter schools with comprehensive services ranging from delivery of fresh fruits and vegetables to “Baby College” for pregnant mothers and recruits all residents living in a 97 square block area in Harlem to participate (Tough, 2008).

Though it is too early for final and formal evaluations, some early results have been encouraging (Dobbie & Fryer, 2009) and people have taken notice. Most notable among these is our current president, who said in a campaign speech that “when I’m President, the first part of my plan to combat urban poverty will be to replicate the Harlem Children’s Zone in twenty cities across the country” (Obama, 2007). The first round of grants has been issued, but it remains to be seen how much more money will follow or whether the winning cities will be able to use the money effectively and sustainably.

Although many argue that social policy should supplement schooling if we want to close the achievement gap, it looks increasingly likely that at least some of these services will be rendered by, or at least in conjunction with, local schools.

## Out-of-School Versus In-School Reform

Finally, even if social policy *can* consistently affect academic performance in a significant way, it remains unclear to what extent we should focus on this as a means of closing the achievement gap. The situation may be akin to health care. Although the cessation of smoking or adoption of a healthier diet would likely benefit a patient more, the hiring of an additional doctor or purchase of better equipment may simply be an easier way for a hospital to affect patients’ health. Similarly, creating new schools or hiring more teachers may simply be easier than trying to change social and environmental conditions.



If looking only at educational outcomes, social reforms must ultimately prove more effective and more efficient than school reforms to justify a shift in focus and resources (any other positive or negative of social policies should, of course, be considered by both ethicists and society at large). One could imagine a scenario in which a number of social reforms yield positive results but of a low magnitude and at high cost. In this case, school reforms might prove a feasible and beneficial alternative.

### *Which Comes First?*

In the debates over the merits of school reform versus social reform—or in discussions of how to weave the two together—many make claims about the time-order sequence of reform. Which must come first, social reform or school reform? Is it the case that schools cannot meet their goals until societal inequalities are eliminated, or is it the case that societal inequalities will be eliminated by improved schooling? Anyon (2005) writes,

Even though economic justice may be a prerequisite for educational justice, more equitable macroeconomic policies will not by themselves create high-quality urban schools. Macroeconomic policy will need to be augmented by educational reform. Providing economic opportunity and realistic hope in urban neighborhoods will be necessary to create the conditions that allow for and support successful urban schools, but these nurturing conditions will have to be supplemented by reforms that prevent racial tracking, low-level curriculum, and poor teaching (for example). (p. 3)

I propose an alternative hypothesis—that social reform and school reform have varying degrees of utility depending on the time frame in which one wants to achieve success. In the very near term (in cases of less than a year, for example) it seems likely that school reforms would tend to be more efficacious. One would think that extra tutoring in reading, for example, would have a larger effect on reading scores 6 months from now than would moving into a new house. In the slightly longer run, however, it may be the case that social reform has more potential to reduce inequality. In four of the five empirical studies reviewed above, the authors measured the change in effects over time and in all four outcomes were notably more positive after 3 or 4 years than they were after 1 year. If this trend is generalizable to social policy at large, it stands to reason that social reform may produce better results a few years down the road than will school reform (subject, of course, to various local circumstances). In the long-run, however, it may be the case that the

achievement gap cannot be eliminated without school reform. Even if societal conditions are improved, one would imagine that those attending worse schools would tend to perform worse than those attending better schools. In this sense, at some point, schooling will have to be at least equalized for the odds of success to also be equalized. In other words, although high-quality schools may not be sufficient for disadvantaged children to match their more advantaged counterparts today, they are likely necessary in the long run.

## **Other Unanswered Questions**

### *Which Policies?*

Although we have an idea of which factors affect academic performance and, to a lesser extent, which changes may bring about changes in performance over time, it is less clear which social policies can be implemented that will bring about these changes. Although a negative income tax seemed to have a modest positive impact on student achievement, it is unclear that this benefit outweighs the other costs of the policy—both monetary costs and the disincentive to work that results.

The New Hope Project may have had the most positive overall impact of the five reviewed but might also prove the most difficult to replicate. As the project involved so many moving parts, significant political will would be necessary to create a similar program elsewhere.

Regarding the Gautreaux decision and the Moving to Opportunity experiment, a recent review of the literature concluded that “despite the ability for some of these programs to bring about context changes, it appears much more difficult to improve the educational outcomes of children” (DeLuca & Dayton, 2009, p. 478). Even if further studies find more positive results, we cannot simply move every poor family from the inner city to the wealthier suburbs and hope they do better. In this sense, the information we have regarding the results of these moves is of somewhat limited utility.

To make an educated guess at which social policies might be most effective at closing the achievement gap, we need to closely examine the outcomes of various policies and compare them with what we know about factors that bring about improvements in academic performance.

### *How Would Social Policy Close the Achievement Gap?*

It is also unclear exactly how social policy would alter the academic performance of those from disadvantaged backgrounds. There is no clear theoretical

consensus in this regard. Whereas some relationships are straightforward (e.g., giving children eyeglasses), others are less so (e.g., improving the housing stock).

Given the limited evidence that we have that social policy can bring about changes that will also change student achievement, it would be somewhat reckless to conclude that social policy can, in fact, close the achievement gap. We have a long way to go before that conclusion can be drawn with certainty.

## **Conclusion**

The achievement gap forms before school starts and widens during summer months when kids are out of school. Partially as a result, nonschool factors better predict academic performance than do in-school factors. Yet the majority of both research and policy interventions focus on in-school reform. Logic dictates that this may be the wrong option to pursue or at least that it should not be the sole option. However, although it is logical to assume that social reform may be an effective avenue for reducing achievement gaps, evidence is lacking that this is actually feasible. Despite claims to the contrary, the literature simply does not support the notion that we can be certain which policies will have the largest impact on the academic performance of students living in urban poverty. In short, we have plenty of reason to believe that social policy might significantly narrow the achievement gap but little evidence that it has or will.

We do not, as of yet, have definitive answers to the following questions: (a) Can social policy influence academic performance in a meaningful way? (b) How can social policy influence academic performance? (c) Which is more effective: social reform or school reform? and (d) Which policies merit our attention? These questions must be answered before we can claim that social reform is the best path for narrowing the achievement gap or which reforms should be undertaken first. Future research should strive to answer these questions to both inform policy makers' decisions and advance the field of knowledge on the achievement gap.

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